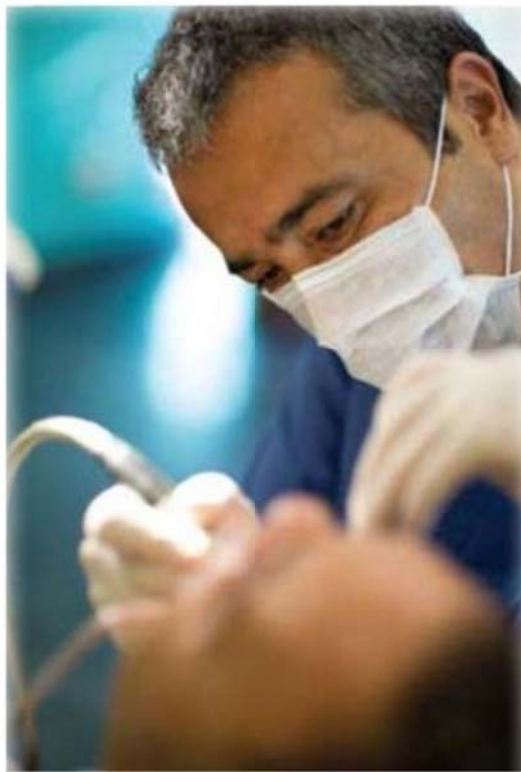


The Promise of Middle-



Skill Occupations

BY JAMES R. STONE III, ORVILLE BLACKMAN AND MORGAN LEWIS

“High-skill, high-wage, high-demand occupations” is the rhetoric most often employed when describing the aim of workforce development, not only for Perkins-funded programs, but also for many high school reform efforts. The assumption is that all other occupations are “low skill, low wage.” Phrases like “high skill, high wage” conjure up visions of technology-driven occupations that demand baccalaureate degrees or higher, intensive mathematics preparation, and the like. In reality, many states define a high-skill occupation as a job requiring any post-high school education; this may include anything from related work experience to a doctorate. High wage is defined as anything above the median for all occupations. This means jobs that may pay between \$30,000 and \$40,000 per year are considered high wage. In short, the phrase “high skill, high wage” tends to blur important distinctions in the labor market, distinctions that especially matter when thinking about potential foci for career and technical education (CTE) programs.

Labor market economists argue that it is difficult to fit occupations into a few skill categories, but most will agree that there are at least three, not two (Holzer and Lerman, 2009). In this schema, high-skill occupations are those in the professional/technical and managerial categories. Low-skill occupations are in the traditional, in-person service and agricultural categories. The rest are middle-skill occupations. As labor market economists define them, middle-skill occupations have three important characteristics:

- They require education or training beyond the high school diploma, but less than a bachelor's degree. This includes associate degrees, vocational certificates and diplomas, significant on-the-job training, apprenticeships, previous work experience or some college (Council on Competitiveness, 2008).
- They are not easily outsourced (Kaleba and Mayo, 2008). By contrast, high-skill professional occupations are increasingly being outsourced along with low-skill and routinized production jobs. Sarosh Kuruvilla of Cornell University's Industrial and Labor Relations School has noted that, “Not only are well-paid jobs moving from Wall Street to Bangalore, but medical research jobs, including those in radiology, drug discovery and testing, and clinical trials, also are moving to India”—as quoted in Crawford, 2007. According to Kuruvilla, high-skill U.S. occupations in several other industries also are being outsourced. “These industries include engineering services—for a number of different industries, but particularly in aerospace and civil aviation—software research and development, and in animation.”
- They are projected to provide the largest number of total job openings through 2016 (see Figure 1; Farr and Shatkin, 2006).

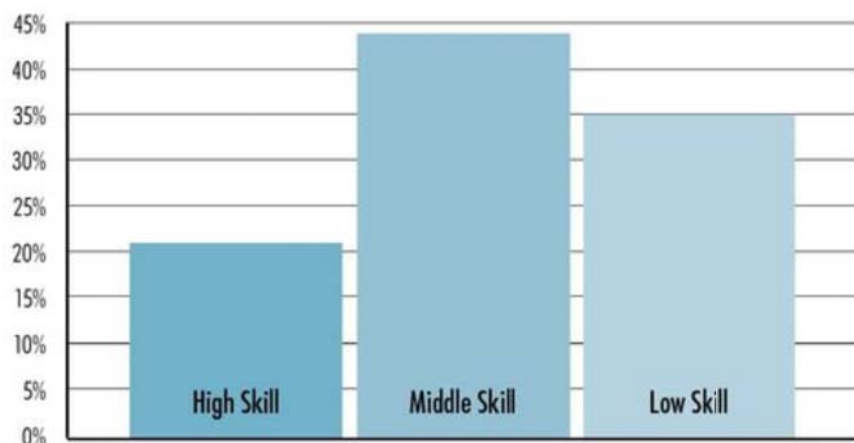
It is this last point that generates a lot of confusion. The U.S. Bureau of Labor Statistics provides many kinds of analy-

ses of labor market trends. Its most cited statistic is “fastest growing occupations.” Many high-skilled occupations are among the fastest growing. The challenge in focusing on this statistic is that it depends on the denominator. That is, if there are 100 people working today in Occupation A and projected growth will add 50 people to that total, we may say that Occupation A's growth rate is 50 percent. If Occupation B currently employs 1,000 people and is expected to add 100 more, its growth rate is only 10 percent—but it is adding double the number of new jobs as Occupation A.

This second statistic—actual projected job openings—is the most useful when thinking about the future workplace and its implications for CTE and workforce development. For example, employment for biomedical engineers, a high-skill occupation, is projected to grow by 72 percent in the next decade, an extraordinary rate of increase. However, that translates into approximately 12,000 new jobs. By contrast, the job of medical assistant—a middle-skill occupation—is expected to grow by a more modest 34 percent, but it will add approximately 164,000 new jobs.

As the demand for middle-skill workers increases, wages in this category are also likely to increase subject to credentials earned and skill levels (Holzer and Lerman, 2009). For example, healthcare workers at the middle-skill level who hold certificates and associate degrees currently earn a median hourly wage of \$27.20. These wages are compared with the national median hourly wage of \$15.57, the default definition of high wage in many

Figure 1: Labor Market Skill Distribution—2016



states and the national median wage for all jobs. In short, many middle-skill occupations pay high wages (see Table 1; Farr and Shatkin, 2006).

There is a definite wage advantage for middle-skill workers with postsecondary training. This wage advantage should serve as an incentive to graduating high school students to pursue postsecondary education and training that qualifies them for middle-skill jobs. It is also an argument for coherent Programs of Study (POS, as mandated by Perkins IV)—especially those that target middle-skill occupational pathways that lead to an industry-recognized credential, diploma or degree.

The Role CTE Plays

Career and technical educators have an important role to play in preparing students for postsecondary education and the labor market. With the increased focus on CTE at the high school level and the potential injection of approximately \$12 billion into redeveloping the nation's community colleges, students who do not intend to pursue bachelor's degrees will have many opportunities to pursue their career interests with reasonable prospects of securing jobs in high-wage occupations. Students should be encouraged to weigh their options carefully and be fully informed about education and job oppor-

tunities after high school. To qualify for a middle-skill occupation, students will be required to earn at least a high school diploma and expect to engage in further training, often combined with working, to obtain these positions.

At the policy level, educators and legislators should carefully consider the needs of the labor market and allocate funding in areas that allow schools and community colleges to prepare students to take full advantage of real job opportunities. Through effective implementation of POS, students should be encouraged to envision their possible futures after high school and pursue courses of study that will help them to achieve their goals. Articulation agreements between schools and community colleges should be expanded, especially for programs that are targeted at occupations associated with high-demand industry-recognized credentials.

Workplace Learning

Internships and apprenticeship programs should also be expanded, especially in the industries in which work-based learning is linked to post-high school education and training. Beginning rigorous, intensive CTE programs in high school can be a very attractive option for some students. One interesting example is in St. Louis, Missouri, where a partnership

was formed between the public schools and the carpenters' union that targets low-achieving youth in high school and leads to an apprenticeship linked to an associate degree. A critical component of this program is the link to skills valued by employers. John Bishop at Cornell University, among others (*e.g.*, Lerman, 2008), has documented the value of extensive work-based learning in achieving both educational and workforce development goals (Bishop and Mane, 2004). Training programs that give students practical experiences are highly respected by employers because students acquire relevant training, problem-solving and communication skills that prepare them for success in the workplace.

Essential Role of Community Colleges

Community colleges are well positioned to train and credential workers for middle-skill jobs, a fact acknowledged by the federal government's American Graduation Initiative (AGI), which seeks to redevelop community colleges. The AGI could also help disadvantaged workers and low-income youth and adults become more qualified to take advantage of middle-skill job opportunities.¹ According to the U.S. Department of Education (2008), about two-thirds of the students who registered in public community colleges in 2004 intended to transfer to four-year schools. With an infusion of funds from the AGI coupled with the federal government's policy agenda targeted at job creation, workforce development is likely to emerge as the nation's most important educational and economic policy mission.

We can expect to see a change in enrollment trends with a higher percentage of students seeking workforce training and middle-skill credentials that will qualify them for immediate placement in jobs with long-term earnings potential. This change is already evident in many postsecondary CTE programs. A recent article discussing career and techni-

Table 1: Middle-Skill Occupations (B.A./B.S. not required)

Career	Estimated Annual Income
Air traffic controller	\$102,030
Storage and distribution manager	\$66,600
Transportation manager	\$66,600
Police and detective supervisor	\$64,430
Non-retail sales manager	\$59,300
Forest firefighting and prevention supervisor	\$58,920
Municipal firefighting and prevention supervisor	\$58,902
Real estate broker	\$58,720
Elevator installer and repairer	\$58,710
Sales representative	\$58,580
Dental hygienist	\$58,350
Radiation therapist	\$57,700
Nuclear medicine technologist	\$56,450
Child support, missing persons and unemployment insurance fraud investigator	\$53,900
Criminal investigator and special agent	\$53,990
Immigration and Customs inspector	\$53,990
Police detective	\$53,990
Police identification and records officer	\$53,990
Commercial pilot	\$53,870
Talent director	\$52,840

cal programs in Virginia's Tidewater Community College pointed out that enrollment in technical programs is larger than in its academic, college transfer programs. Welders and pipe fitters are in high demand as are auto technicians. The emergency medical technician program is one of the fastest growing in the college (to read more, go to: <http://hamptonroads.com/2010/03/getting-technical-carrepair-program-grow-ing-fast>).

Middle-skill Occupations Hold Promise for Many

Despite the documented employment and wage earning potential of this labor market segment, the term "middle skill" has failed to gain traction. In the current "college for all" debate, any discussion

of something other than "high-skill" and its implicit or explicit focus on the four-year college degree is often seen as "old vocational education." As we refine what we mean by CTE, it is critical to consider the realities of the labor market and shape our efforts to these realities as we strive to meet the needs of our students and the workforce needs of this nation. This means that as important as high skills may be to the rhetoric of reform, we must not ignore the promise that middle-skill occupations hold for many of today's youth and adults. **I**

Footnotes

- 1 See <http://thepage.time.com/fact-sheet-obamas-community-college-initiative>.

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